

ABSTRACT OF THE DISCLOSURE

The present disclosure is directed to a non-volatile memory device having a SONOS structure and a method of fabricating the same, wherein the non-volatile memory device having the SONOS structure is fabricated using a simple and lower cost method by greatly reducing the number of the photo engraving process. As disclosed herein, in one example a method of fabricating a non-volatile memory device includes forming a sacrificial oxide film on a semiconductor substrate and selectively etching the sacrificial oxide film to expose the semiconductor substrate with a predetermined width; injecting first conductive type impurity ions into the exposed semiconductor substrate to form a first semiconductor region, forming an additional oxide and nitride film on the entire upper surface of the semiconductor substrate in order; selectively etching the nitride film, the additional oxide, and the sacrificial oxide film to form a gate window which exposes the semiconductor substrate with a predetermined width; forming a gate oxide film over the entire upper surface of the semiconductor substrate; forming polysilicon layer on the gate oxide film to fill in the gate window; carrying out a CMP process until the sacrificial oxide film is exposed; removing the sacrificial oxide film, and the gate oxide film, the nitride film, and the additional oxide formed on the side wall of the polysilicon layer; injecting second conductive type impurity ions into portions of the semiconductor substrate, which corresponds to the outer part of the polysilicon layer, to form source and drain regions.